(2)

DEPARTMENT OF THE AIR FORCE

AIR UNIVERSITY

AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

AFIT/GLM/LSM/88S-55

AN EXAMINATION OF THE UNITED STATES' ROLE IN THE DEVELOPMENT OF THE ISRAELI LAVI FIGHTER AIRCRAFT PROGRAM

THESIS

Duane M. Petzoldt, B.S.
GS-11, AFLC

AFIT/GLM/LSM/88S-55

Approved for public release; distribution unlimited

The contents of the document are technically accurate, and no sensitive items, detrimental ideas, or deleterious information is contained therein. Furthermore, the views expressed in the document are those of the author and do not necessarily reflect the views of the School of Systems and Logistics, the Air University, the United States Air Force, or the Department of Defense.

AFIT/GLM/LSM/88S-55

AN EXAMINATION OF THE UNITED STATES' ROLE IN THE DEVELOPMENT OF THE ISRAELI LAVI FIGHTER AIRCRAFT PROGRAM

THESIS

Presented to the Faculty of the School of Systems and Logistics
of the Air Force Institute of Technology
Air University
In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Logistics Management

Duane M. Petzoldt, B.S.
GS-11, AFLC

September 1988

Acknowledgments

I am deeply indebted to my advisor, Dr. Craig T. Brandt, for his guidance and encouragement. Without his support this research may not have been possible.

My most special thanks go to Nancy Morse for her invaluable assistance in providing administrative and technical resources throughout this process.

Duane M. Petzoldt

Table of Contents

		Page
Acknowledgments		ii
List of Figures		v
List of Tables		vi
Abstract		vii
I.	Introduction	1
	Overview	1
	U.S.-Israeli Relationship	1
	Israel's Military Economy	3
	Threat to Israel	4
	General Issue	8
	Problem Statement	10
	Research Objectives	11
	Scope and Limitations	11
	Methodology	12
II.	Literature Review	14
	Overview	14
	History of Israel	14
	U.S. Security Assistance to Israel	16
	Reasons for U.S. Aid to Israel	19
	Impact of U.S. Aid to Israel	22
	Israel's Current Situation	23
	Conclusions	25
III.	Development of the Lavi	27
	Overview	27
	Initial Proposal of the Lavi	27
	Technology for the Lavi	30
	Funding for the Lavi	32
	Development of the Lavi	36
	Increased Costs for the Lavi	41
	Cancellation of the Lavi	45
	Future of the Lavi	46
IV.	Conclusions and Recommendations	50
	Conclusions	50
	Recommendations for Future Research	53

Page

Bibliography 54

Vita 60

List of Figures

Figure		Page
1.	Map of Israel	2
2.	Foreign Military Sales to Israel	7
3.	Design Characteristics of the Lavi	39

List of Tables

Table		Page
1.	U.S. Coproduction Agreements	5
2.	Arab-Israeli Military Balance	8
3.	Lavi Specifications	37
4.	Major U.S. Defense Contractors for the Lavi . . .	40

Abstract

Security assistance is an outward sign of the long-standing special relationship between the U.S. and Israel. The U.S. has used security assistance as an aid to its foreign policy objectives of providing for Israel's security, promoting stability in the Middle East and containing Soviet expansion into the area. For the purpose of this research, security assistance was examined through an analysis of the U.S. role in the development of the Israeli Lavi fighter aircraft program.

The methodology included an overview of Israel's historical dependence on U.S. aid. This research addressed the following objective questions: (1) why did Israel want to build the Lavi when there were several advanced fighters already available, (2) why did the United States fund the Lavi, and (3) what did the Lavi project accomplish in terms of U.S. foreign policy?

The examination of the Lavi analyzed how Israel developed the initial proposal for the aircraft, how they acquired the funds and technology from the U.S., how the program costs escalated, why the project was cancelled, and how Israel will meet future threats to its security. Also examined were the effects the Lavi had on promoting U.S. foreign policy goals in the Middle East and if those goals were met.

AN EXAMINATION OF THE UNITED STATES' ROLE IN THE DEVELOPMENT OF THE ISRAELI LAVI FIGHTER AIRCRAFT PROGRAM

I. Introduction

Overview

Since Israel's creation in 1948, the American-Israeli relationship has always been influenced by a pro-Israeli attitude in the United States. Israel is seen as a pioneering democracy, the same democratic ethic upon which generations of Americans have been raised. Israel has always been viewed as being a stable government providing a refuge for Jewish immigration. In the U.S., there is a deep respect for individual liberty and the right to enjoy political and religious freedom. Israel is also seen as a loyal partner in its efforts to attain U.S. foreign policy goals in the Middle East (66:17). See Figure 1.

U.S.-Israeli Relationship

The U.S.-Israeli relations have sometimes been described as a 'love-hate' relationship. Israel has its own Middle East policies, and its goals are not always those of the United States. The biggest disagreement in recent years has been the U.S. policy of selling arms to the Arab states. Israel sees this as selling out for Arab oil (47:99). The sales of arms to the Arab countries usually results in the U.S. 'sweetening the pot' for Israel as well, as with the sale of the Airborne

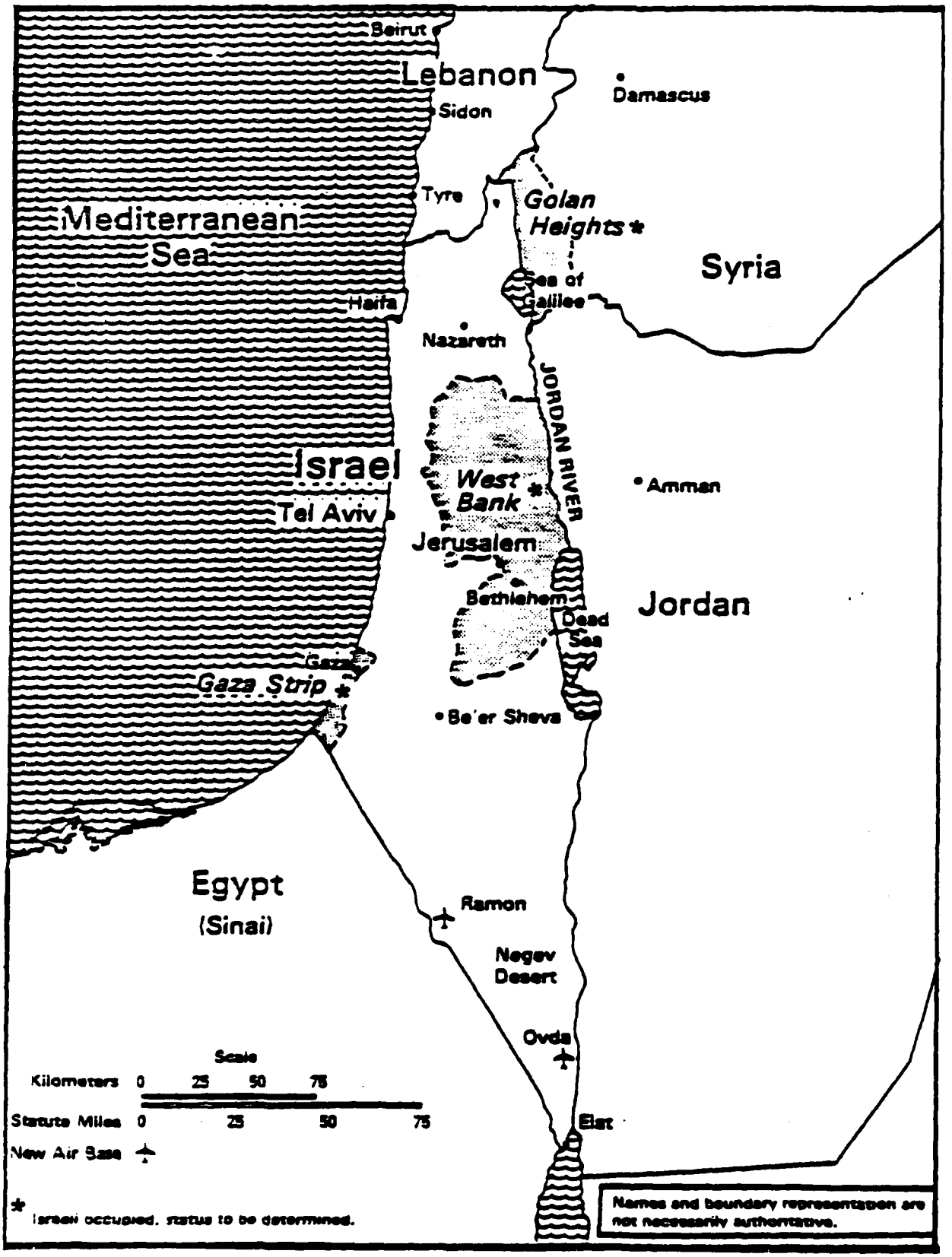

Figure 1. Map of Israel (18:5)

Warning and Control System (AWACS) to Saudi Arabia. Israeli concern with the sale reportedly resulted in an additional $200 million in economic aid with the promise of an additional $600 million in military aid in 1981 (66:137).

The U.S. might have been trying to 'sweeten the pot' in 1984 when the Senate Foreign Relations Committee and the House Foreign Affairs Committee voted enthusiastically for $2.5 billion in military and economic aid for Israel. This aid was in the form of a grant that Israel would never have to repay. Included in this amount was $400 million to help Israel develop the Lavi (74:195). Israel had originally decided to build the Lavi (Hebrew for Lion) in 1982 as the cornerstone of its developing industrial base but had stated publicly that, because Israeli aircraft operated under far more severe conditions than those of other nations, only a new design could meet its security needs (68:484). With U.S. money which would eventually total more than $1.5 billion, the Israeli dream of producing their own fighter airplane became a reality (73:10-E).

Israel's Military Economy

Israel's economy, in 1982 when the Lavi project was initiated, had an inflation rate of 140 percent per year. Its balance of trade deficit was approaching 10 percent of its gross national product (GNP). Servicing its national debt was consuming an additional 23.7 percent of its GNP. The U.S. was forced to forgive millions of dollars in military

assistance loans (66-140). The direct and indirect tax rate on the average Israeli citizen was in the range of 55 to 60 percent, the highest rate of taxation in the world (53:36).

Israel's military forces and weapon systems were responsible for the crisis it was facing. There was a total of 142,000 active duty members of the armed forces with an additional 370,000 in the reserves. The air force had close to 700 combat aircraft in its inventory, consisting of American F-4s, Israeli Kfirs, 39 F-15s, and 72 F-16s (26:77). The Kfir was seen as an aging aircraft that needed to be replaced. The Kfir had another liability in that it utilized General Electric engines and could not be exported by Israel because of retransfer restrictions imposed by the United States, meaning resale by Israel would have to be approved by the United States (56:245).

Even with the U.S. restrictions, the Israeli arms export business had grown from under $100 million in 1973 to over $1 billion in 1980 (54:161). Combined with the expansion of coproduction agreements with Third World countries and their ever increasing appetite for arms, it was a natural assumption that the U.S. would be amenable to a coproduction agreement with Israel on a new fighter aircraft (41:173). See Table 1.

Threat to Israel

Because of Israel's military strength, stability, and strategic position to promote U.S. interests in the Middle East, the American-Israeli Joint Political Military Group was

Table 1

U.S. Coproduction Agreements

Major U.S. Coproduction Programs with the Third World, 1982

Item	U.S. Producer	Overseas Producer
F-5E Aircraft	Northrop	Taiwan
F-5E Aircraft	Northrop	South Korea
500-MD Helicopter	Hughes	South Korea
2.75-Inch Rocket	N.A.	Turkey
F-16 Aircraft Components	General Dynamics	Israel
M-48 and M-60 Tank Components	Chrysler	Israel
AN/TPS-63 Radar	Westinghouse	Egypt
M-456, M-735 Artillery Ammunition	N.A.	Egypt

(41:166)

established in 1983 to produce mutually beneficial strategic cooperation through joint military exercises. In 1987, President Reagan further enhanced Israels standing by naming it a major non-NATO ally even though the U.S. and Israel have never signed any type of mutual defense agreement (13:107). The U.S. has provided Israel with more than $35 billion in weapons over the past four decades. More than $11 billion has been in the form of non-repayable grant aid. It is estimated that Israel will continue to receive approximately $3 billion in U.S. aid per year for the next several years because of its strategic importance to the stability of the Middle East

(48:14-A). See Figure 2. This aid is necessary as Israel spends an estimated 52 percent of its gross national product on defense (53:32).

Israel views all its neighboring Arab states as potential enemies aimed at destroying the state of Israel. It is not uncommon to hear Israeli officials speak of 120 million Arabs against 3 million Jews. See Table 2. Israeli thinking has always been influenced by the tremendous length of its borders, its meager economic resources, and its small population when dealing with the Arab threat. Israel has tried to overcome these disparities with more modern and technically-advanced weaponry (2:5-6).

Meeting the Arab threat to Israeli security was one of the reasons offered as to why Israel needed a new fighter aircraft. Israel's Defense Minister, Yitzhak Rabin, stated that the five U.S. aircraft packages available to Israel for modernizing its air force did not meet the Israeli operational requirements. A fighter had to be tailor-made for Israel's unique environment and threat (16:18). The Lavi could also have been seen as a national political symbol. The symbolic attribute of large-scale national projects increases national prestige abroad and appeals to domestic pride and nationalism. This cuts across social divisions and serves to unify diverse groups (71:332). A final reason for the Lavi program might be the need for a true domestically designed and built aircraft for export. Israel is heavily dependent on imports and has to

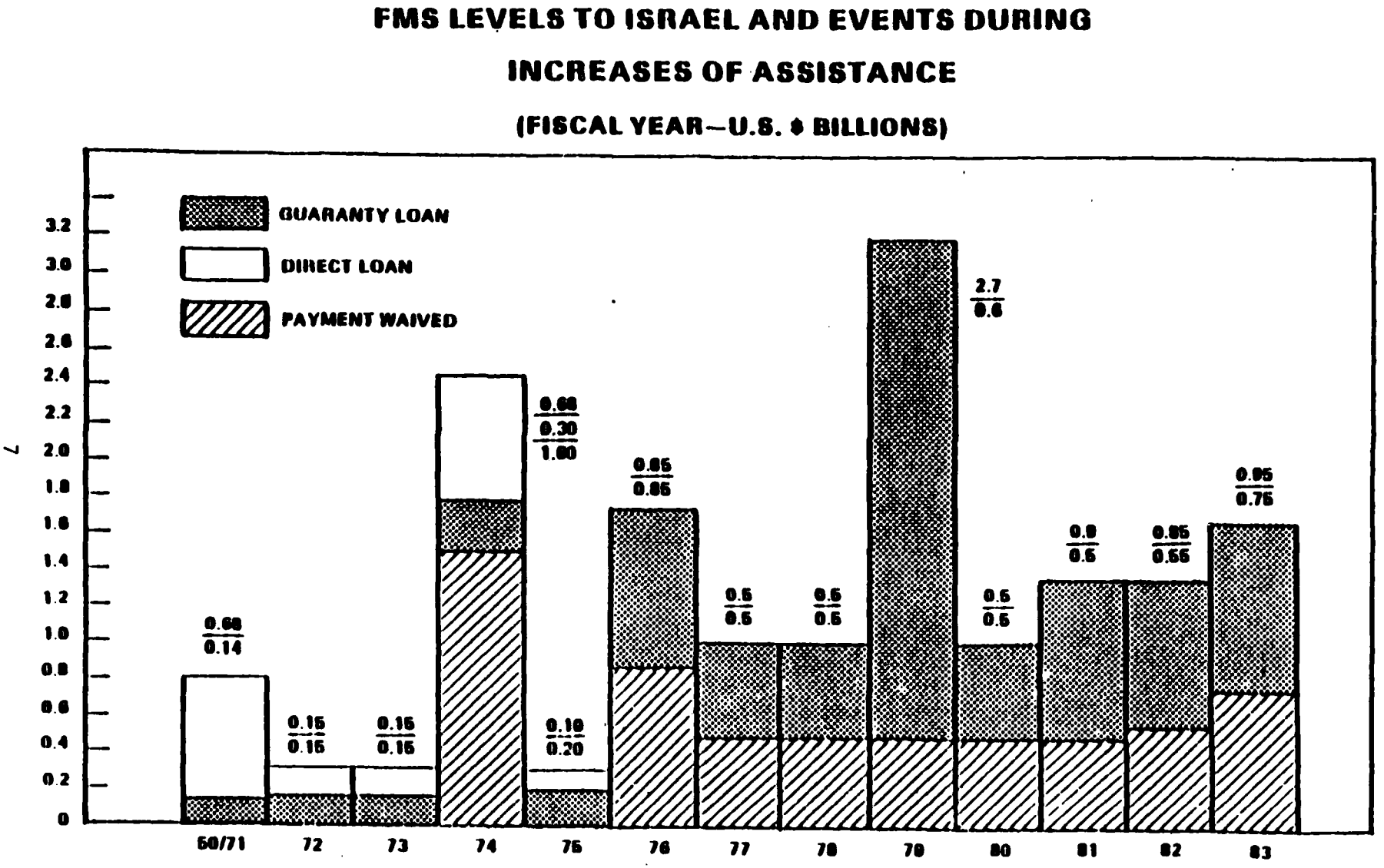

Figure 2. Foreign Military Sales to Israel (18:8)

Table 2

Arab-Israeli Military Balance

		Arab Coalition*	Israel	Ratio
Army:				
Personnel:	Regular	845,000	130,000	6.5:1
	Reserve	710,000	310,000	2.3:1
	Total	1.56 mil.	440,000	3.5:1
Divisions		26	12	2.2:1
Independent brigades		48	20	2.4:1
Tanks		8,205	3,900	2.1:1
Other armored fighting vehicles		9,860	8,000	1.2:1
Artillery and mortars		5,500	1,100	5:1
Surface-to-surface missile launchers		85	12	4.5:1
Air Force and Air Defense:				
Personnel:	Regular	229,000	30,000	7.6:1
	Reserve	62,500	50,000	1.3:1
	Total	291,500	80,000	3.6:1
Total combat aircraft		1,453	626	2.3:1
Transport aircraft		123	96	1.3:1
Total helicopters		514	215	2.4:1
Military airfields		49	11	4.5:1

* Arab coalition is defined by the Jafee Center for Strategic Studies to include the full forces of Syria, Jordan, PLO, Egypt, Libyan Navy and partial forces of other Arab countries. Iraq is excluded because of its current involvement in the Iran-Iraq War.

(26:77)

increasingly rely on armaments exports to lessen its trade deficit (52:215).

General Issue

A major component in implementing United States foreign policy is security assistance (12:2-10). Military assistance is seen by the U.S. as a way to ensure the expansion of

democratic ideals by containing communist aggression. The Reagan administration also sees military assistance in the form of arms transfers to reduce the need for direct U.S. involvement in regional conflicts, improve the American economy by providing a stable defense production base, enhance the possibility of gaining access to regional bases, and show allies that they will not be abandoned in time of conflict (12:1-24).

Security assistance in the early 1970's had been concentrated on North Atlantic Treaty Organization countries, but with the fall of the Shah of Iran, it was recognized that the security of the Middle East is vital to the economic health of the free world (37:41). The Middle East is of vital importance to the U.S. because of its location astride the sea lanes between Europe and the Orient and because it has 70 percent of the non-communist world's proven oil reserves (79:13).

The Draper Committee reports that dollar for dollar security assistance contributed more to U.S. security than corresponding expenditures on our military establishment (82:10). But as dollars for security assistance have become more difficult to find within our budget and increasing emphasis has been placed on weapons systems standardization, codevelopment and coproduction of weapon systems have become an important method of providing military assistance to friendly countries in order to promote U.S. foreign policy aims. The question being asked is do codevelopment and

coproduction work to influence the recipients in the way the U.S. prefers or do the countries just take the weapons and technology and then do with them as they wish.

Meeting the Arab threat to Israeli security was one of the reasons offered as to why Israel needed a new fighter aircraft. Israel's Defense Minister, Yitzhak Rabin, stated that the five U.S. aircraft packages available to Israel for modernizing its air force did not meet the Israeli operational requirements. A fighter had to be tailor-made for Israel's unique environment and threat (16:18). The Lavi could also have been seen as a national political symbol. The symbolic attribute of large-scale national projects increases national prestige abroad and appeals to domestic pride and nationalism. This cuts across social divisions and serves to unify diverse groups (71:332). A final reason for the Lavi program might be the need for a true domestically designed and built aircraft for export. Israel is heavily dependent on imports and has to be increasingly rely on armaments exports to lessen its trade deficit (52:215).

Problem Statement

The U.S. established a development program with Israel to develop a new fighter aircraft. This was over a billion dollar effort on the part of the U.S. to provide Israel with the money and technology it needed to ensure its military security. The purpose of this research is to determine if

the U.S. has accomplished its security assistance objectives with this development program.

Research Objectives

The objective questions to be examined in determining what was accomplished by funding the Lavi aircraft development are: (1) why did Israel want to build the Lavi when there were several advanced fighters already available, (2) why did the United States fund the Lavi, and (3) what did the Lavi project accomplish in terms of U.S. foreign policy?

Scope and Limitations

This research was limited to an examination of the cultural, political, economic, and military conditions in Israel for the period from 1977 to the present. This was the period of concern for the development of the Lavi fighter aircraft. The examination of U.S. military assistance was limited to a brief analysis of its effect on foreign policy decisions. The U.S.-Israeli cooperative effort in other weapon systems development covered the period from 1977 to the present.

Information contained in this study is current as to what was published or otherwise available. However, due to the long lead time usually required for analysis and publication of many indicators dealing with the Israeli economy, data in this area may be less current as it is constantly being updated and refined as the data becomes available. Numerous sources were used to obtain information about the Israeli

economy in an attempt to verify the accuracy of the data. Assumptions by the various authors in such areas as exchange rates between Israeli and American currency may have some effect on the data. Since the intent in this area was to show the impact of defense expenditures on the Israeli economy, some inconsistency in the data did not present a serious limitation to this research, and such inconsistencies were noted as they occurred in the data presented.

Methodology

Overview. There is an extensive amount of published material written about Israel, U.S. military assistance, U.S.-Israeli cooperation, and the Middle East. As this thesis is a historical review of the Lavi fighter aircraft development program, an examination of the material on the Lavi was considered to be the best was to present the subject. Therefore, the method utilized in answering the research question was a historical literature search including a review of published sources, congressional documents, Government Accounting Office reports, and other official documents.

Data Sources. A comprehensive literature search of the subject material was undertaken which included books, periodicals, and government publications. A Department of Defense (DOD) literature search was conducted through the Defense Technical Information Center (DTIC) and the Defense Logistics Studies Information Exchange (DLSIE). Studies dealing specifically with the Lavi program were not available.

Several periodicals including Newsweek, Time, The Wall Street Journal, The Washington Post, and U.S. News and World Report were excellent sources of current information from a U.S. perspective concerning the relationship between the U.S. and Israel and Israel's requirements for and use of American aid. International periodicals including The Middle East, Israeli Digest, Palestine Digest, MERIP Reports, and Midstream served as diversified sources of information on current military, economic, and political events in Israel and the Middle East in general.

The U.S. Congress publishes documentation containing transcripts of hearings before both Senate and House committees which deal with aid to Israel. These publications along with the Congressional Record and the Congressional Quarterly Almanac gave a comprehensive summary of all security assistance to Israel to date as well as the reasons for extending such assistance. As for the future, the FY 1987 Congressional Presentation Document (CPD) outlined the proposed assistance requested by the Reagan Administration for Fiscal Year 1987.

II. Literature Review

Overview

The American commitment to maintain Israel's security and independence has been the cornerstone of United State's Middle East policy since 1948 when the state of Israel was founded. In the 1988 federal budget request for $3 billion in economic and military aid to Israel, the specifically stated foreign policy goals for this aid were to promote peace in the Middle East and enhance regional stability, improve Israel's economy and support democratic institutions, and improve Israeli self-defense capability (79:157).

This chapter presents an analysis of available literature to determine if these objectives have been accomplished through a review of the impact of previous foreign aid to Israel. Five areas of interest will be presented including a brief look at the historical factors in the Middle East, an examination of U.S. security assistance efforts to Israel, an analysis of why the U.S. gives aid to Israel, how the aid impacts Israel, and a review of the current situation in the Middle East.

History of Israel

Any study of U.S. security assistance to Israel would not be complete without an understanding of how the state of Israel was created. The Jews have thought of the area called Palestine as their homeland as far back as biblical times, but it was not until the anti-Semitism in Europe of the late

nineteenth century that the nationalist movement called Zionism reaffirmed the call for a Jewish homeland in Palestine (47:15). The Zionist movement received its first official recognition when Britian's Foreign Secretary Arthur Balfour sent a letter to Lord Lionel Rothschild, a representative of the Zionists, endorsing a Jewish homeland in Palestine. Balfour was attempting to gain Zionist support for the British war effort (62:24). This document, known as the Balfour Declaration, signaled the start of increased Jewish emigration to Palestine then under British rule and continued throughout the 1920s and '30s.

World War II interrupted the migration of Jews to Palestine. When the war ended and Hitler's "Final Solution" was officially and publicly recognized, the cry for a Jewish homeland as a refuge for the survivors was more strident than ever. In all, the Holocaust claimed 6 million of the estimated 16 million Jews (52:37). Faced with increasing violence between Jewish refugees and Palestinians, the British government withdrew its troops from Palestine in 1947, and the just-created United Nations voted to partition Palestine into separate Jewish and Palestinian States (47:21).

The resulting War for Independence in 1948 resulted in the Jewish forces defeating the Arab states and created 600,000 Palestinian refugees, who had fled Palestine when the Arab armies attacked (81:12A). Jewish leaders proclaimed independence for the new state called Israel on May 14, 1948. Within 11 minutes of David Ben-Gurion's proclamation,

President Harry Truman recognized Israel (46:1A). In the three wars to follow--the 1956 Sinai Campaign, the 1967 Six Day War, and the Yom Kippur War of 1973--the United States has consistently been the only western nation to provide support to the Israeli's war effort (47:24-37).

The last 40 years and four wars have really nothing in the Middle East. Israel, a country of four million Jews, is surrounded by 120 million Arabs whose avowed goal is the destruction of Israel. The Arabs still refuse to recognize the existence of Israel and maintain the Palestinian Arab refugees as a separate, stateless people (81:12A). Israel now has the unenviable task of surviving external threats from the Arab states as well as internal threats from the Palestinian refugees in the occupied territories of the West Bank and Gaza Strip.

U.S. Security Assistance to Israel

The U.S. has given Israel over $40 billion in economic and military aid since 1948 (46:4A). Of this, $35 billion has been military hardware (48:14A). See Figure 2. It is estimated that aid of all types to Israel totals more than $250 billion in the last 40 years (53:39). Military aid has included everything from missiles to tanks to planes. One of the few weapons which Israel has wanted but the U.S. refused to supply was the Pershing IA missile. The Pershing has a range of 450 miles and could theoretically have been used to deliver a nuclear payload against several of the neighboring Arab

states. The U.S. finally agreed to supply Lance missiles with a range of only 75 miles (38:16). For the most part, Israel has been prudent enough to only request weapon systems it knows the United States is willing to supply.

From 1948 to 1962, the U.S. was reluctant to supply arms to Israel. This was in part due to a United Nation's resolution calling for an arms embargo and because the U.S., Great Britain, and France had agreed to limit arms shipments to the Middle East solely for the purpose of internal security and legitimate self-defense (47:44). In 1962, France reduced arms shipments to Israel while increasing weapons transfers to the Arabs. The Soviet Union during this time was also supplying the Arabs with military hardware. The U.S. attempted to correct this imbalance by selling Israel Patton tanks and Skyhawk A-4 bombers (47:46).

In 1967 at the outbreak of the Six Day War, the U.S. imposed an arms embargo to Israel. The embargo lasted until the Soviets began resupplying the Arab states to replace weapons lost during the war. When the Soviets refused to limit their resupply to the Arabs, the U.S. decided to sell offensive weapons to the Israelis, namely the F-4 Phantom, a top-of-the-line U.S. fighter aircraft (47:48). Military assistance increased after the Yom Kippur War in 1973 when the surprise Arab attack almost led to the defeat of Israel and caused extensive military hardware losses. President Richard Nixon requested the Congress to provide emergency aid to Israel in the amount of $1 billion for procurement of U.S.

military hardware. This marked the first time Israel was made the recipient of grant military aid (24:68).

In 1973, the first Arab oil embargo began to raise concerns in the U.S. about the effect of arms sales to Israel. The U.S. Senate Committee on Foreign Relations reaffirmed a policy of restraint in arms transfers but accorded Israel special status as to not impair Israel's deterrent strength (24:76). Starting in 1974, the congressional aid bill for Israel included waivers for military purchases on credit. Waivers for Israel's credit purchases now total over $5.5 billion (23:29). In 1978, the U.S. showed the Arab world that it is profitable to be a friend of Israel by allowing for $4.8 billion in aid to be split between Israel and Egypt as a reward for their signing the Camp David Peace Accords (43:123). More recently, the U.S. has rewarded Israel with F-15s, F-16s, and aid to build their own fighter aircraft along with various other projects like airstrips in the Negev Desert to replace those lost when Israel pulled out of the Sinai peninsula (71:335).

Not only does the U.S. sell arms to Israel, it also supplies over $100 million per year in economic support fund money. Additional aid from the U.S. includes transfers of military technology, scientific know-how, military intelligence, support in United Nations resolutions, and favored nation status in other areas of trade (42:25).

Reasons for U.S. Aid to Israel

The Americans have always had a high degree of affection for Israel. There are parallels between the two countries which seem to indicate we can identify with the Israeli struggle. Both countries are democracies with similar political institutions created after rebellions against British rule. Both countries are comprised of immigrants who shared the same ideals of building new societies, because just as the Pilgrims came to the new world seeking religious freedom, so did the Jews to Palestine to practice their religious beliefs free from the centuries of persecution. The pioneering spirit of a group of immigrants transforming a desert and building a modern nation in the midst of overwhelming adversaries is said to have captured the imagination of America (46:4A).

Another possible explanation for U.S. aid to Israel has to do with keeping the oil flowing from the Middle East. In 1974 after the first Arab Oil Embargo, it was determined by the U.S. administration that a militarily strong Israel was essential to avoid future military conflicts in the area which could disrupt the flow of oil. When war breaks out between Israel and the Arab states, the levels of U.S. military aid increase. The Six Day War brought not only victory for Israel, but also increased amounts of sophisticated weapons to help it maintain its military superiority in the region. The Yom Kippur War resulted in U.S. financial help to Israel in the amount of $1 billion to purchase U.S. military equipment

in an effort to ensure Israel's victory (24:68). The U.S. logic seems to be that if Israel is sufficiently armed then the Arabs have to keep selling oil to obtain the necessary funds to buy arms for defending themselves in future wars with Israel.

A far more realistic explanation for the decades of aid to Israel can be related to the reasons for the founding of Israel. With the deaths of six million Jews in the Holocaust, the true extent of European anti-Semitism was revealed. The European and American support for a Jewish refuge in Israel is directly linked to the fact that after World War II, no country was willing to accept the Jewish refugees. European countries and the U.S. were assuaging their feelings of guilt for not saving the Jews from slaughter. The creation of Israel was the payment to the Jews for this guilt (52:4).

Presidential politics and guilt over the Holocaust seem to go hand-in-hand when dealing with Israel. President Harry Truman recognized Israel against the express wishes of his top advisors because he claimed American public opinion wanted Palestine to be a homeland for the Jews. Several scholars have theorized that Truman supported the creation of Israel because he needed the American Jewish vote in the 1948 presidential election (66:41). Studies of the 1948 election results do not identify any substantial Jewish voter influence, but the fact remains that Truman pulled a surprising victory over Republican Thomas Dewey.

There are over six million Jews in the United States as compared to four million in Israel. While the average voter turnout for presidential elections is 55 percent, the American Jewish voter turnout is over 90 percent. The American Jews not only vote, they are willing to make substantial campaign contributions and actively campaign for candidates who openly support Israel. John F. Kennedy attributed his close election victory in 1960 over Richard Nixon to the support of the American Jewish community. The Jewish vote also played a role in Jimmy Carter's victory over Gerald Ford in 1976 (74:54-56). Although Ronald Reagan was rejected by the Jewish voters receiving only 33 percent of the Jewish vote, he has continually cited the Holocaust as a factor behind his sympathy and support for Israel (66:11).

It is probably a combination of these factors that has led every administration to publicly and financially support Israel during the first 40 years of its existence. President Truman started the precedent by verbally promising to defend Israel against Arab attack. President Eisenhower pressed for aid to Israel to increase stability in the Middle East and to thwart Soviet expansionism. The threat of military force to combat Soviet aggression was a prime tenet of the Eisenhower Doctrine. Henry Kissinger practised shuttle diplomacy in the Middle East during the Nixon/Ford years to arrange for disengagement pacts between Egypt, Syria, and Israel. His efforts reaffirmed U.S. resolve for the state of Israel and demonstrated that the U.S. was serious about resolving Middle

East conflict. Even President Carter's concern for human rights and reducing the flow of U.S. arms transfers through his Presidential Directive 13 contained an exclusion for arms transfers to Israel. President Reagan has been providing several Middle East states with high technology weapons and aid to Israel while pursuing a Middle East Peace Initiative (49:108-160).

Impact of U.S. Aid to Israel

At the same time Israel realizes their absolute dependence on American arms, it is resentful of how the U.S. attempts to manipulate the supply of weapons in an effort to influence Israeli domestic policy. They cite the alternating cycle of promises and pressure, years with large increases in aid followed by periods of small increases (apparently when the U.S. does not want a specific response from Israel), quick response to immediate security issues and ignoring long-term security risks, and a shift from weapons transfers to supplying monetary aid. Israeli leaders complain that aid always comes with strings attached such as the Israeli withdrawal from the Sinai in return for aid (56:3).

Israel claims that it deserves the economic and military aid without any pressure or strings attached as it is one of America's staunchest friends. They claim the $3 or $4 billion per year in aid to Israel gives the U.S. a better defense of Europe's southern flank than the $30 billion spent on NATO defending the northern flank of Europe. Israel joins in joint

military exercises with U.S. forces, shares valuable military intelligence, battle tests American weapon systems and reports the results, and is willing to let the U.S. preposition supplies on Israeli soil (13:110). Because Israel is America's major non-NATO partner, they feel that arms to the Arabs should be purely defensive and have lobbied strongly against sales of F-15s and AWACS to Saudi Arabia and F-16s to Jordan (41:136).

Israel points out that the cyclical nature of U.S. aid is disastrous to its economy. When aid is plentiful from America, their economy booms and inflation runs into triple digits. When aid is cut back, the economy slumps. For economic and strategic planning, U.S. aid should be consistent and free of pressure in order to curb the boom or bust cycle of their economy (74:228).

Israel's Current Situation

The economic, political, and social infrastructures in Israel are fraught with the same problems today as when the nation was founded in 1948. Tax reform and economic restructuring are urgently needed. Israel has the highest income tax rates of any industrialized nation in the world. Rates were lowered from 60 percent to 48 percent after economists argued that many people were realizing it did not pay to work for a living. Consumer goods are subject to high import fees, making automobiles and electronics unaffordable to many Israelis. Although inflation has slowed from its 600

percent per year peak in the early 1980s, it is still running at about 20 percent per year (81:12A).

The reason for the economic problems is the massive spending on defense. Estimated figures for defense spending as a percentage of gross national product (GNP) reveal Israel spent 20 percent or $5.11 billion on defense in 1987 (72:12A). In contrast, the U.S. spends an estimated 6 percent of its GNP (67:1F). With a $300 billion defense budget being only 6 percent of the GNP, U.S. spending at Israeli levels would consume our entire $1.1 trillion budget. Some sources have put defense spending for Israel at over 50 percent of GNP (53:32). This has created an external debt burden of over $30 billion dollars which would be the equivalent of the U.S. having a $5 trillion debt instead of $2 trillion. Servicing the national debt takes over a third of Israel's budget, so their foreign borrowing continues (26:77).

The social problem of what to do with the Palestinian refugees is creating political divisions with Israel. Almost 200 Palestinians have died during the past year for engaging in demonstrations against Israeli rule of the occupied territories. With seemingly no way to stop the disturbances, Israel is losing some of its staunchest supporters in the U.S. and creating divisions within the ruling coalition in the Knesset, the Israeli Parliament. The problem will continue to grow as the birth rate continues to increase among the refugees living in the West Bank and Gaza Strip (81:12A).

American disapproval of Israel's handling of the refugee problem is just the latest in a list of disagreements between the U.S. and Israel. The bombing of the Iraqi nuclear reactor in 1981 and Israel's invasion of Lebanon in 1982 were clearly violations of the 1952 U.S. security assistance pact and the 1976 Arms Export Control Act, which decrees that U.S. supplied arms are solely for internal security and self-defense (41:156). There have also been disagreements on Israeli sales of weapons to Iran and South Africa, Israeli involvement in our own Iran/contra affair, and the Jonathan Pollard spy case conviction for supplying classified information to Israel (46:4A).

Conclusions

In 40 years of U.S. military and economic support, Israel has fought and won four wars against the Arabs. There are currently six conflicts going on in the Middle East which threaten regional stability--the Israeli-Palestinian violence; the Iran-Iraq War; the Soviet occupation of Afganistan; the civil war in Lebanon; the Ethiopian civil conflict; the Libyan invasion of Chad; the American hostages in Lebanon; and world-wide terrorism originating from Libya and the Palestine Liberation Organization (PLO) are indications that U.S. aid is not able to promote peace and regional stability in the Middle East (78:56).

The fact that even the Israelis feel that unreliable U.S. aid is undermining their economy, and that arms sales of

offensive weapons to the Arabs is destroying Israeli security further erodes the contention by the administration that security assistance can achieve U.S. objectives. It might be more accurate to suggest that the U.S. keeps providing Israel with arms so that Israeli Defense Minister Moshe Dayan's assertion that Israel's military power should be seen as a potential 'detonator' of 'wider areas' beyond its borders. That Israel would send such widespread 'tremors' that 'others would be shaken' and others should give some pause before pushing Israel into a desperate corner (2:30). To many this appears to be an indication that if forced to, Israel will be willing to make some sort of strategic first strike.

III. Development of the Lavi

Overview

This chapter will examine the role of the United States in providing technology and economic aid to Israel for development of the Lavi fighter aircraft program as a major component of U.S. military and economic assistance to Israel and if this assistance is consistent with stated U.S. foreign policy goals for the Mideast. The research questions of: (1) why did Israel want to build Lavi when several others were available, (2) why did the U.S. fund the Lavi, and (3) what did the Lavi accomplish in terms of U.S. foreign policy? The structure of this chapter will be the initial proposal of the Lavi, the technology required by Israel, how the U.S. came to fund the Lavi, the development of the Lavi, the costs of the program, the decision to cancel the Lavi, and what the future might hold for Israel's fighter program.

Initial Proposal of the Lavi

A new fighter aircraft was proposed for development by Israel Aircraft Industries (IAI) in the 1970s as a low cost, low technology, primarily ground support aircraft to replace the aging Kfir series of fighters (9:17). The Kfir is an Israeli built fighter modeled closely on the design of the French Mirage fighter that IAI, the government owned aircraft industry, had been producing since 1968 (14:40). The initial estimates for the Lavi (originally called the Arieh, also Hebrew for lion) in 1978 called for $600 million for research

and development and a unit cost of $6.5-7 million based on a production run of 200 aircraft (34:21).

The initial estimate of $600 million included design, development, flight testing and production tooling. It was determined that the engines would be developed outside Israel, but eventually built in Israel. The Lavi was to be ready for inclusion in the Israeli Defense Forces (IDF) inventory by 1986 or 1987 (34:21). It was privately decided to go ahead with the Lavi in 1979. All that was needed for Lavi production was American technology and American money. The technology would be hampered by U.S. law--specifically the Arms Export Control Act (AECA) of 1976--which invests the U.S. government with control over foreign military sales and export of military hardware and technology. The AECA states the executive branch must approve the transfer and issue export licenses, while the U.S. Congress has the right to halt the transfer (41:56-7). The quest for technology and money from the U.S. illustrates personal relationships and Israeli persistence (1:F5).

The official reason for development for the Lavi was that existing jet fighters available from the U.S. were not totally suitable for Israeli operational requirements, unique environment and threat (16:18). The unofficial reasons are more revealing. According to Moshe Arens former Israeli Defense Minister, the architects of Israel's defense industry are driven by the fact that Israel throughout its 40 year history has always been under the thumb of one or more of the world's major powers when it came to obtaining weapons. Israel wanted

an independent arms industry so no other country would be able put the 'clamps' on Israel. This freedom of action would also help Israel become a major player in arms sales to other countries. Arms sales to foreign customers was approaching $1 billion per year. A modern jet fighter could double or triple that amount (14:40). Other benefits would be additional jobs, keeping aerospace engineers from leaving the country and developing other 'high-tech' products suitable for export (1:F6).

Although the official decision to go forward on the Lavi project would not be announced until February 1982, the Israeli government approached the Carter administration in 1979 for $181 million in development money and the rights to produce a modified version of the Pratt and Whitney (P & W) F100 engine, which powers the F-15 and F-16 fighters. Israel had obtained what was supposed to be a one-time-only exception from the Ford administration to use $107 million in military aid for development of the Merkava tank, rather than using the money to buy U.S. M-60 tanks as required by security assistance policy. The Carter administration, basking in the glow of the Camp David Accords, was only to happy to go along with Israel's request. This exception to the one-time-only exception laid the groundwork for the Lavi and the first serious design work was begun (14:40).

Technology for the Lavi

Now that Israel had the seed money to develop a jet engine facility and authorization to produce a P & W F100 engine, it was time to decide on what jet engine to build for the Lavi. In March 1980, Israel announced it had selected the General Electric (GE) F404 for the Lavi and asked the U.S. for permission to talk to GE about a coproduction agreement. Israel had used the GE J79 engine in the Kfir (35:12). After permission was received for the F404, Israel announced that the final engine decision would be made by May 1981 between the F404 and F100 in an attempt to get the most favorable terms possible. Engine selection had to be delayed for analysis of cost to Israel on transferring production to Israel from the U.S. (8:21). During the engine competition between P & W and GE, P & W proposed using its new PW1120 turbofan engine. Israel was more than willing to take the more powerful engine citing as the reason that they wanted to be sure that there would be enough power to carry and operate new air-launched weapons expected to be developed (36:71). The prospect of a contract worth over $250 million for providing engines led the U.S. contractors to offer only the very best (1:F9).

With the selection of the PW1120 engine in June 1981 and the official announcement by Israel in February 1982 to develop the Lavi, the green light was given to U.S. contractors to get in on the ground floor of the program. Israel was negotiating with aerospace companies to coproduce the aircraft wings and tail. The potential payoff would be a third of the now

estimated $1.1 billion development cost going to the U.S. contractor. McDonnell Douglas, General Dynamics, Grumman, and Northrop were the main competitors in this next stage of the Lavi development (77:51).

The engine was selected and the defense contractors were ready to go to work on the airframe, but the U.S. State Department had to give approval for the transfer of composite materials technology. The State Department was not anxious to take action on anything relating to armaments or technology transfers to Israel. The U.S. Department of Defense had approved the transfer with some reservations, but the State Department was conducting a major policy review on the Middle East because of the Israeli invasion of Lebanon. The implication from the U.S. was that if Israel were to start a pullout of Lebanon, then the technology transfer would be approved (69:20).

In addition to composite materials for the Lavi, Israel was asking for transfer approval of an emergency power system, electrical power systems, an environmental control system, leading edge flaps, hydraulic system components and some 20 other state-of-the-art systems. As the Lavi was being designed with the new high-tech features, the estimated costs were also rising. The unit cost per Lavi were now estimated at $10.8 million. With the engine development already budgeted at $300 million, the new development costs for Lavi components were estimated at $1.1 billion with an additional $210 million for production tooling (80:20-3). Based now on a 300 aircraft

production run, the development, production and spares costs now put the total cost of the Lavi at over $7 billion without adding in any maintenance or operation costs. These figures were starting to get the attention of the State Department as well as the Defense Department because Israel had no apparent method of obtaining the funds required for development of the Lavi (27:23).

In October 1983, the Reagan Administration notified Congress that it was granting a license to Grumman Aerospace Corporation to supply Israel with 50 sets of composite wings. The U.S. Senate took the notification as a sign that Israel was going to get whatever it needed from the Reagan Administration to develop the Lavi (70:27). The fact the Israelis allowed the Palestinian Liberation Organization to be evacuated from Lebanon and thereby avoiding a massacre seems to have influenced the U.S. to allow for the transfer of the wings. The Israelis were now ready to go ahead with the building of the first of five prototypes with their newly procured engines and high-tech components (75:20). All that remained was coming up with $7 billion.

Funding for the Lavi

When Israel decided on February 4, 1982 to go ahead with the Lavi fighter development program, it knew that obtaining funds for this costly program would be difficult. Israel knew it would have to depend on U.S. technology and financing for a major portion of the Lavi. Another stumbling block could be

receiving U.S. permission for anticipated third-country sales of the Lavi as required by the Arms Export Control Act (AECA) if the Lavi were to become the cornerstone of Israel's growing arms export industry, as required by AECA (18:55). As noted, Israel had obtained authorization from the U.S. in 1979 to transfer $181 million in Foreign Military Sales credits for use on developing the engine for the Lavi and had selected U.S. companies for work on the airframe and electronic components. But as of 1982, no U.S. or European company had been willing to sink any of its own money on the Lavi. The rejection by the U.S. aerospace industry was based in part that the Lavi had evolved from a low cost, low tech aircraft which would not directly compete with exiting U.S. aircraft to a sophisticated high-performance version which could (14:40).

Israel spent the next three years lobbying the U.S. administration and Congress for funds for the Lavi. The new Reagan administration was fearful of asking Congress for money because of growing opposition to the project by U.S. companies, most notably Northrop Corporation who pointed out that they had received no government assistance in building their new fighter, the ill-fated F-20 (58:16). Israel countered these arguments by stating that of the $1.5 billion to develop the Lavi, 40 percent would go to U.S. defense contractors and create over 20,000 jobs in the U.S. and futhermore, it would be 10 to 12 years before Israel would be able to export the Lavi (17:24).

Opposition to the Lavi program was also being heard in Israel as the estimated costs for the fighter had risen from the initial $600 million strictly for research and development to an estimated $13-14 billion to produce the 300 planes for Israel. Although four successive defense ministers had approved the Lavi program, Israeli military planners argued the project would sap resources from other Israeli defense programs (57:A2).

It was not until the spring of 1983 that progress began to be made in getting the necessary funding. Moshe Arens, an American educated engineer and Israeli ambassador to the U.S., replaced Ariel Sharon as Israel's defense minister. Arens had friends in the U.S., such as Secretary of State George Shultz, and was willing to make new ones (1:F6). One of the first new friends Arens made was U.S. Representative Charles Wilson, a Democrat from Texas and a key member of the House subcommittee responsible for appropriating foreign aid. In April 1983, Wilson went to Tel Aviv on a congressional trip and met with Arens. Wilson was a known admirer of Israel and its fighting prowess and was asked by Arens to sponsor legislation that would permit U.S. aid money to be spent in Israel on the Lavi. Back in Washington, Wilson asked the American Israel Public Affairs Committee (AIPAC), a pro-Israeli lobby, to draft the language for an amendment to the fiscal year (FY) 1984 Continuing Budget Resolution which would earmark $550 million of FY84 military aid to Israel for the Lavi. It should be noted that only one member of the House received more political

contributions from AIPAC in the 1984 election than Wilson (9:29).

Wilson's amendment was introduced in November 1983, just prior to the Christmas recess. In four days with no committee hearings and only minor floor debate, Congress approved, by an overwhelming majority, the expenditure of the funds with $300 million to be spent in the U.S. and $250 million to be spent in Israel for research and development of the Lavi (1:F7).

In contrast to the enthusiastic support in Congress, some Reagan administration officials were opposed to the Lavi. U.S. Secretary of Defense Casper Weinberger voiced the Defense Department uneasiness about providing foreign nations with American weapons technology. Of particular concern was permitting Israel the technology and money to manufacture the composite material for the Lavi's wings. The U.S. does not even allow such close allies like Great Britain the technology to manufacture advanced American components (9:28).

The Joint Chiefs of Staff (JCS) in the Pentagon were opposed to the Lavi as their assessments revealed that the existing threat environment to Israel did not justify the Lavi or for that matter large numbers of other high performance aircraft. Pentagon estimates regularly concluded that the Israeli Air Force was of sufficient size and quality to meet any expected threats. The JCS also argued that heavy reliance by Israel on the Lavi reduced the Israeli Air Force's compatibility with the U.S. Air Force should the two forces

ever need to combine to meet a military contingency in the Middle East (1:F7).

Secretary of State Schultz favored the Lavi, although there was strong opposition at lower departmental levels on various foreign policy grounds. President Reagan maintained some distance from the matter, allowing the Congress to take the initiative on the Lavi (9:29).

AIPAC remained highly visible when it came time to vote for funds for the Lavi. It sent every member of Congress letters and called upon member of key committees to remind the Congressmen, at least implicitly, of the political benefits of voting for the Lavi. It also appears that AIPAC had little interest in encouraging the holding of lengthy, detailed committee hearings that might have exposed the Lavi to public scrutiny and delayed Congressional funding. AIPAC fostered the view that a true friend of Israel, one who was pro-Israel, must demonstrate his loyalty by voting for the Lavi (1:F7).

Congress, again with very little debate, then appropriated another $400 million for the Lavi in FY85 and $800 million for FY86-87 (64:20). This brought the total U.S. expenditure on development for the Lavi to just under $2 billion (9:30).

Development of the Lavi

With the technology and funding in place, Israel began building six prototype Lavis. The first two prototypes were intended to be used to develop the Lavi's advanced quadruplex digital flight control system. They were also used for

aerodynamic studies, flutter testing, takeoff and landing tests and general handling characteristics. The next prototypes would integrate the new avionics and weapons systems with at least the remaining two Lavis designed to be fully operational two seat trainers (7:19).

The general size and performance characteristics for the Lavi was beginning to resemble the General Dynamics F-16 (see Table 3). The estimated costs of the Lavi were also starting to resemble a modern U.S. fighter with the projected cost per

Table 3

Lavi Specifications

Wing Area	350 sq. ft.
Engine:	
1 PW1120 (sea level max. thrust)	20,620 lbs.
Weights:	
Basic Takeoff Gross Weight	21,305 lbs.
Maximum Takeoff Weight	42,000 lbs.
Fuel Capacity--Internal	6,000 lbs.
Fuel Capacity--External	9,180 lbs.
Air Combat Parameters:	
Combat Weight (50% internal fuel)	18,695 lbs.
Wing Loading (per sq. ft.)	53.4 lbs.
Thrust to Weight Ratio	1.10
Maximum Load Factor	9g
Maximum Speed	Mach 1.85

(27:23)

unit now set at $12-15 million dollars versus the original $6.5-7 million (6:19).

The reasons for the increase was partly due to inflation during the early 1980s, but the majority of the increase was due to what Israel was designing into the Lavi. The design was based on medium and close-range, air-to-ground sorties for close air support. The Lavi requirements were for high-speed penetration to the target, high maneuverability, and low drag. The range for combat missions was estimated to be 1,000 miles for air-to-air and 1,150 miles for air-to-ground (6:18).

The engineers at IAI were providing advances to the Lavi in terms to the aerodynamics and avionics. The aerodynamics design was relying on full control-configured vehicle (CCV). The CCV design used aircraft shaping to achieve optimum flight performance for any given flight condition and is optimized by the close-coupled canard-type wing design (see Figure 3). This design would permit long-range, high-speed operations by the relatively small airframe and at the same time, permit it to carry a heavy weapons load without a high drag penalty (6:18).

The avionics concept was built around the use of proven technologies. The avionics design was to operate with advanced digital systems with interactive multifunction display and controls, fire control integrated with internal and external sensors, and enhanced active and passive self-defensive systems. Embedded computer systems for the Lavi were built to comply with U.S. military specifications. The flight control system for the aircraft was a fly-by-wire system with a relaxed

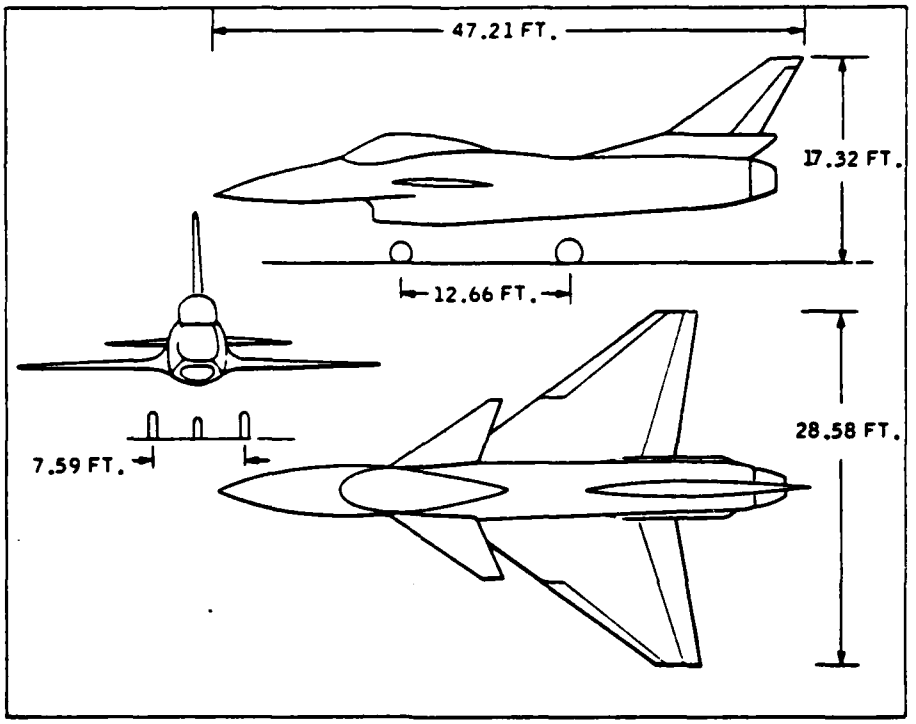

Figure 3. Design Characteristics of the Lavi (80:20)

static stability. The avionics systems for the Lavi involved a number of U.S. contractors (see Table 4) with contracts worth over $700 million (44:112).

A prime component in the Lavi avionics package was the combined radar and electronic countermeasure (ECM) systems. The internal ECM self-protection system design was aimed at enhancing the aircraft's counter-electronics capability and at boosting the Lavi's payload capacity by freeing wing and fuselage stations for additional ordnance. Each system was tailored to fit the specialized operation requirements that it would have to perform in carrying out the Lavi's mission. Emphasis was placed on flexibility and adaptability to counter changing threats. Israel claimed that with this adaptability

Table 4

Major U.S. Defense Contractors for the Lavi

Company	Component	Dollar Value
Pratt and Whitney	Engine	$270,000,000
Grumman Aerospace	Wing and Tail	151,000,000
Moog Incorporated	Servo Actuators	61,000,000
Hughes Aircraft Co.	Heads-Up Display	14,400,000
Sundstrand Corp.	Leading Edge Flap	10,400,000
Lear Siegler Inc.	Flight Cont. Comp.	28,900,000
Avcron Inc. (ITT)	ESM Modules	28,900,000
Garrett Air Research	Environ. Cont. Sys.	71,000,000
Est. Total (120 Contracts)		$700,000,000

(44:112)

built-in, the Lavi's basic avionics suite could be useful for 15-20 years before modifications would be needed (5:111).

There were only minor delays in building the prototypes, many of them dealing with getting supplies from the U.S. contractors and finding enough trained personnel to work on the Lavi at IAI plants in Israel. On July 21, 1986, the first Lavi prototype was rolled out for public inspection at Ben Gurion International Airport near Tel Aviv. On hand were the Israeli and American dignitaries who had made the Lavi possible through their persistence and money. One of the U.S. delegation, Representative Jack Kemp (R-NY), praised the Lavi as a real and

visible expression of the partnership between Israel and American. The euphoria would be short-lived for less than a year later, with Israel preparing to complete the third prototype with the full avionics package, the Lavi would come under attack from all sides as the costs for the program continued to escalate (30:27).

Increased Costs for the Lavi

With Congress funding the Lavi and Israel working on the prototypes, the other major players in defense and industry finally began to take the Lavi program seriously. The first salvo on the Lavi was to come from the U.S. Department of Defense in a classified report authored by Dov S. Zakheim, assistant undersecretary of defense for policy and resources. Zakheim's report stated the Israeli cost estimated for the Lavi were 30-35 percent too low. This would cost Israel, more likely the U.S., an additional $16 billion to build 300 aircraft envisioned by the Lavi program (19:32).

The report compared Israeli flyaway cost estimates of $14.7 million in FY85 dollars with the DOD figure of $20.7 million. Other costs were also questioned, such as production, spares and operations being between 13 and 56 percent too low. The report made no recommendation as to whether the Lavi should be continued or cancelled, saying the decision was up to the Israeli government and in any event, the U.S. was committed to maintaining Israel's ability to defend itself (19:32). Israeli officials denied the reports findings stating the flyaway costs

of the Lavi would be around $15 million. IAI officials reported double-checking Zakheim's figures and finding three significant errors to explain the difference between estimates. Actual labor rates for IAI were $24 per hour, while Zakheim used the $45 U.S. defense industry rate. The cost of the PW1120 engines were over costed by $1.5 million and cost of materials for the airframe and avionics were $2 million per plane too high. Finally, IAI pointed out that the $20-22 million estimate, with all its errors, could have been a lot worse as some rumored estimates were running $30-40 million (29:19). Furthermore, the U.S. F-16s ordered by Israel cost them $42.67 million each, so the dollar value on the Lavi was not a problem considering the alternatives (19:33).

Supporters of the Lavi also tried to discredit Zakheim's report by characterizing it as a Pentagon plot because the Lavi was a better aircraft than current U.S. models (63:34). AIPAC took the lead in refuting the report by questioning Zakheim's selection to head the study because he is an orthodox Jew and ordained Rabbi. Morrie Armitay of AIPAC stated there would be nothing more clever than to have a Jew to lead the charge against the Lavi. He added that it was very convenient to use an American Jew to get the Israelis to do something they don't want to do and then be able to say the guy doesn't like us or doesn't understand us. Zakheim answered the Pentagon plot charges by stating he was not trying to stop the Lavi. He stated that numbers were nondenominational and the Israelis need to know what the Lavi would really cost (21:64).

The Israeli cabinet soon experienced a split over the costs of the Lavi largely as a result of the DOD report. Israeli Defense Minister Yitzhak Rabin and Finance Minister Moshe Nissim proposed that either the Lavi program be slowed or cancelled. Rabin was concerned that the project was causing cuts in all other defense programs and called for a reevaluation (28:33). Nissim was more vocal in his opposition to the Lavi. The finance ministry presented the Israeli cabinet with cost figures which projected a $2000 tax increase for every Israeli even if the U.S. continued to fund the Lavi at its current levels. This was a serious argument against the project as Israel was in the midst of an economic recovery which had reduced inflation from 450 to 20 percent annually. Nissim warned that deficit spending to continue the Lavi would bring a return of triple digit inflation (60:36).

As the argument over Lavi costs raged in both Israel and the U.S., the Israeli cabinet led by Prime Minister Yitzhak Shamir of the Likud Party continued to support the program. However, members of Israel's Labor Party did force a compromise where the costs of the Lavi would be held at $550 million per year. This would come out of the U.S. military aid package of $1.8 billion per year. Israel had asked for this to be increased to $2.3 billion, but Congress faced with the Gramm-Rudman deficit reduction bill was for once disinclined to vote the additional funds. IAI assured the Israeli cabinet that the Lavi could survive on $550 million per year if the planned output was reduced from 30 to 24 per year with

production beginning in 1990 (11:26). The Israeli government summed up their position on Lavi costs by pointing out that you could purchase a McDonnell Douglas F-4 for $5 million, but if you couldn't survive with it, you were better off spending an additional $10-15 for a plane that could survive (31:28).

The stalemate between the U.S. and Israel over the Lavi costs was broken when in January of 1987, the General Accounting Office (GAO) published a report stating that neither Israel's estimate of $15 million per plane nor Zakheim's DOD figure of over $20 million were correct. The GAO estimated the flyaway costs per plane would be $17-18 million. But plane cost was unimportant because assuming an annual inflation rate of 6 percent, the annual outlays for the Lavi would exceed $1 billion per year by 1990, when production was scheduled to begin, and $1.4 billion by the year 2000 (20:29). The implication was clear that the U.S. Congress would be forced to bail Israel out with additional money being cut from other military assistance programs (21:64). If Congress didn't come through with the funds, then Israel would be forced to export up to 200 Lavis to make up for difference (11:26).

The fate of the Lavi was sealed when Dov Zakheim testified before the House Foreign Affairs Subcommittee on Europe and the Middle East in February/March 1987. The subcommittee was considering foreign assistance legislation for FY88-89 and wanted to hear the DOD evaluation of the GAO report. Zakheim stood by his estimates on fly away costs for the Lavi. When questioned about Israel saving money by building less than 300

aircraft, Zakheim stated that fly away costs would more than double. He reported estimates of up to $70 million per plane by the time Israel was finished with its drawn-out production schedule. Zakheim agreed with the GAO's assessment that the budget ceiling of $550 million set by Israel couldn't be kept. The situation with the Lavi according to Zakheim was that no matter what Israel did, Israel would not only not be able to afford the Lavi regardless of the aircraft numbers but also they would not be able to afford anything else either (76:209-11).

Cancellation of the Lavi

On August 30, 1987, the Israeli cabinet voted 12 to 11 to cancel the Lavi (39:13). Dov Zakheim had made an offer the Israelis could not afford to turn down. He offered Israel several alternatives to the Lavi: (1) the McDonnell Douglas Harrier AV-8B at $20.8 million per plane which Israel would be able to coproduce and also be able to sell to other countries; (2) the latest long-range version McDonnell Douglas F-15E at $27.6 million per plane; (3) the General Dynamic F-16 at $14 million per plane which Israel would also be able to coproduce; or (4) the McDonnell Douglas F-18 with its full avionics package and the possibility of coproduction (59:F11).

The cancellation costs and layoffs at IAI were also arranged before the Lavi was scrapped. Israel estimated cancellation costs at $700 million as 50 to 60 percent of the plane was being manufactured in the U.S. and those contracts

would have to be settled (40:46). Department of Defense officials estimate the cost to cancel the Lavi at $400 million and assured the extremely generous financial package for the purchase of a U.S. weapon system would take into account the termination costs (33:25). Layoffs at IAI were predicted to be 5,000 by the Israelis (22:48). At Israeli Foreign Minister Shimon Peres suggestion, the Reagan Administration $100 million per year for Israel to use IAI engineers to work toward and even more advanced fighter for the next century (39:13).

Public reaction in Israel to the cancellation of the Lavi brought demonstrations by IAI employees and cabinet member Moshe Arens, the father of the Lavi, resigned his post (15:11). The disgruntled IAI employees only managed to block one of Ben Gurion's main runways for a short time and then dispersed (4:22). It was pointed out that there really was not that much to get upset about because they still had their jobs and the $1.5 billion spent on the Lavi had come from the U.S. not Israel (45:29).

Future of the Lavi

The Lavi had been cancelled but the years spent working on the electronics components were not abandoned. The Israelis are still getting unspecified amounts of money to continue to extract information from the avionics suite. Flight tests of the prototypes have been continued to examine what possible use can be made of the electronics systems. So far, Israel has not been able to get any U.S. or European company interested in

reviving the Lavi. Israel did opt to buy an additional 75 General Dynamics F-16s to replace the cancelled Lavi (51:B12). The testing goes on with Israel attempting to get the electronics package ready to put into the F-16CD (32:18).

The Pratt and Whitney PW1120 jet engine had been specifically designed for the Lavi so when the program was cancelled P & W had no other orders for the engine. Israel and the U.S. have tried to alleviate this problem by allowing IAI to equip an F-4 with twin PW1120 to see if Israel's F-4s could be updated with the engines and advanced avionics from the Lavi (50:21).

There is still talk of reviving the Lavi program; but first Israel would have to do something about its internal problems with 'Intifada' and attempt to resolve the Palestinian issue before the U.S. would be likely to consider getting involved. It appears that this latest strategy in the four decade old war between the Arabs and the Jews is the new military strategy. If the Arabs can not destroy Israel from without, they are willing to destroy the institution of Israel from within (61:9A). Israeli Prime Minister Yitzak Shamir accepted the additional 75 F-16s along with the implicit understanding that he talk with the Palestinians and consider giving them some degree of self-rule. To this date, he has been unwilling to do so and is in fact urging harsher treatment to put down the uprising (65:7A).

Israel has other problems. The Iran/Iraq war is coming to an inconclusive end. What is needed to unite the Arabs is a

nice war with Israel. A war with Israel would at least get the price of oil back up to its late 1970s levels. Israel has increased its preparations for war by increasing military exercises for just that situation (25:2A). Israel is having trouble getting new immigrants. They have had to institute the policy of any Soviet Jews obtaining visas from the Israeli embassy in Romania have to go to Israel rather than the U.S. or Western European countries. Israel had to adopt this restrictive policy because only one-in-five emigres was ending up in Israel (10:6B).

A perhaps much more important problem for the security of Israel is that recent polls have shown that the treatment of the Palestinians has been taking its toll on American public opinion. The percentage of Americans having a sympathetic attitude towards Israel has fallen from 48 percent to 37 percent according to a poll released this year by the American Jewish Committee. This could lead to a less than favorable reception when it comes time to get the yearly aid package from Congress (55:2A).

The analogy of U.S. involvement in Vietnam comes to mind when examining the U.S. relationship to Israel. The U.S. had invested so much money and prestige in Vietnam that no one felt we could withdraw regardless of the circumstances (66:3). Israel had so much national pride and prestige invested in their Lavi that they were loath to give it up, but they did and

just like the U.S. and Vietnam time will heal the wounds. Israel does not have to worry about the U.S. abandoning them, but the U.S. can not protect the Israelis from themselves.

IV. Conclusions and Recommendations

Conclusions

The Lavi project was solely an attempt by Israel to gain U.S. technology and money in order to further develop and expand its arms industry and arms exports. The U.S. Department of Defense was aware of Israel's motives and was opposed to the Lavi. But the persistence of Israel's leaders and lobbyists in the U.S. persuaded the U.S. congress to fund the Lavi. The State Department was willing to go along with the Lavi in hopes that Israel could be persuaded to pull out of Lebanon in order to get more money for the Lavi. The Lavi did not accomplish either Israels or the U.S. goals. Israel does not have a new domestic fighter to fuel its arms industry, and the U.S. has apparently lost whatever influence it has had with Israel. The money spent on the Lavi basically did more harm than good.

The Lavi was a mistake. As Moshe Arens stated after the cancellation of the Lavi that the original design was not a very good one and would have had to been cancelled because it was not a survivable aircraft. IAI brought in Israeli pilots, the best pilots in the world, to help increase the survivability of the Lavi, the best airplane in the world, and ended up with an aircraft they could afford to build. That was how the Lavi came to be a high tech, high cost version of the F-16 (3:23).

While the Israelis were designing the best fighter aircraft in the world and waiting for the U.S. to come up with the funds to build it, they were buying more American built fighters to maintain their edge in the Middle East. The Israelis bought an additional 10 F-15s and doubled the number of F-16s to 150 planes. They even built an additional 50 Kfir C-2s to get the total number of fighter aircraft in the IDF's inventory to over 700 (58:17). The U.S. have agreed to sell the Israelis another 75 F-16s and are providing the money for upgrading the F-4s.

Israel needed to replace its domestic fighter. They wanted to replace it with another domestic fighter. What started out as a fighter became a symbol. When the U.S. finally realized what that symbol would cost, the heat was on Israel to get rid of the project. It will end up costing the U.S. taxpayer just as much because Israel is still a symbol to us.

Israel did not need to build a jet fighter of its own design to ensure its security. The Lavi was an attempt to ensure its independence of action when it came to dealing with its neighbors in the Middle East. In the five years between the initial concept of the Lavi and the receipt of funds to start the development, the economy of Israel was subject to triple digit inflation and ran up huge budget deficits funding the arms buildup they thought necessary for their security. When you have a country with three million people, there just isn't enough people or money to make grandiose national

projects. Israel wanted to bet the country's defense on the Lavi and most certainly would still do so if the money would flow from the seemingly inexhaustible U.S. coffers. Most importantly during the development of the Lavi, Israel had no serious threat to its security. Iran was at war with Iraq. Egypt had a peace accord with Israel and was being rearmed by the Reagan Administration. Syria and Jordan had smaller forces and inferior weapons and if the previous four wars with Israel had taught them anything, it was that you do not attack Israel without the assurances of a great deal of help. Saudi Arabia and Kuwait were in the process of becoming just as close to the U.S. as Israel. For all intents and purposes, they are still dedicated to the destruction of Israel but are not likely to try anything on their own. Israel had the best air force in the area in 1979 and it still has the best today without the Lavi.

It is important to note that the development of the Lavi went against many of the principles on which U.S. military assistance is based, namely, not to introduce new weapons systems into an area, not to fund new off-shore research with military assistance funds and not to promote the acquisition of weapons by our allies of weapons that are not compatible with our own. In the case of the Lavi, it was the Congress and to some degree the State Department that allowed Israel the necessary money, technology and encouragement to attempt to build the Lavi. This does not absolve the DOD. They stood by and did not protest until the Lavi became a threat to the funds

they wanted for other security assistance projects. As long as Israel could keep the Lavi costs within their military assistance budget, the Defense Department was willing to look the other way.

Recommendations for Future Research

Two areas of the Middle East/Israel situation deserve a more detailed examination. A statistical comparison or computer simulation might be done to better assess the relative merits to Israeli claims that they have to keep upgrading and expanding their weapons arsenal to meet the increasing Arab threat. The Arab countries, if combined into a single force, have a severe numerical superiority but not necessarily a strategic advantage.

A more detailed look needs to be taken as to the actual design and technical capabilities of the Lavi. This could not be undertaken in this analysis because the complete avionics package was just being installed and test flown at the time this examination was being done. Any of the material which might shed light on this matter is currently classified in the U.S. at Israel's request. Hopefully, when Israel tries to resurrect the Lavi as the Israeli Advanced Tactical Fighter, the records should be available to whomever would care to look.

Bibliography

1. Babcock, Carles R. "How U.S. Came to Underwrite Israel's Lavi Fighter Project," Washington Post, 73: F5 (6 August 1986).

2. Ben-Horin, Yoav and Barry Posen. Israel's Strategic Doctrine. Rand Corporation Report; No. R-2845-NA. Santa Monica CA: September 1981.

3. Brown, David A. "Israelis Review Decisions That Led to Lavi Cancellation," Aviation Week & Space Technology, 127: 22-24 (14 September 1987).

4. -----. "Decision to Cancel Lavi Divides Israel," Aviation Week & Space Technology, 127: 22-25 (7 September 1987).

5. -----. "Combined Radar, ECM Functions Will Enhance Lavi Survivability," Aviation Week & Space Technology, 125: 109-113 (25 August 1986).

6. -----. "U.S. Built Flight Control System Delays First Flight of Lavi," Aviation Week & Space Technology, 125: 18-20 (28 July 1986).

7. -----. "Israelis Stress Need for U.S. Aid to Complete Lavi Development," Aviation Week & Space Technology, 122: 18-21 (25 March 1985).

8. -----. "Lavi Engine to be Selected in Mid-May," Aviation Week & Space Technology, 114: 20-21 (30 March 1981).

9. Clarke, Duncan L. and Alan S. Cohen. "United States, Israel and the Lavi Fighter," The Middle East Journal, 40: 16-32 (Winter 1986).

10. "Come Here or Eat Borsch, Israel Tells Soviet Jews," Dayton Daily News, 111: 6B (20 June 1988).

11. "Decrease in U.S. Aid to Israel May Force Halt in Lavi Program," Aviation Week & Space Technology, 124: 26 (9 June 1986).

12. Defense Institute of Security Assistance Management. The Management of Security Assistance (Seventh Edition). Wright-Patterson AFB OH: November 1986.

13. Dine, Thomas A. "Achievements and Advances in the United States-Israel Relationship," Journal of Palestine Studies, 16: 95-111 (Summer 1987).

14. Fialka, John J. "Israel Bucks Big Leagues in Arms Sales," The Wall Street Journal, CCIV: 40 (22 June 1984).

15. Fink, Donald E. "Israel at the Crossroads," Aviation Week & Space Technology, 126: 11 (8 June 1987).

16. -----. "Israel Renews Debate on Lavi Development," Aviation Week & Space Technology, 126: 18-19 (1 June 1987).

17. "Funding for Israeli Fighter Triggers Debate in House," Aviation Week & Space Technology, 120: 24 (21 May 1984).

18. General Accounting Office. U.S. Assistance to the State of Israel. GAO/ID-83-51. Washington DC: 24 June 1983.

19. Gordon, James K. "U.S. Defense Department Claims Israelis Underestimated Lavi Fighter Costs," Aviation Week & Space Technology, 124: 32-33 (10 February 1986).

20. Greenberger, Robert S. "GAO Says Planned Israeli Jet Fighter Will Cost Far Beyond Budget Ceiling," The Wall Street Journal, CCIX: 29 (23 February 1987).

21. -----. "How a Rabbi in the Pentagon Has Stirred Up a Political Dogfight Around an Israeli Jet Fighter," The Wall Street Journal, CCVIII: 64 (29 September 1986).

22. Greenwald, John. "What Price Sky-High Glory?" Time, 130: 48 (20 July 1987).

23. Grimmett, Richard F. "The Role of Security Assistance in Historical Perspective," U.S. Security Assistance: The Political Process. Edited by Ernest Graves and Steven A. Hildreth. Lexington MA: Lexington Books, 1985.

24. Hildreth, Steven A. "Perceptions of U.S. Security Assistance, 1958-1983: The Public Record," U.S. Security Assistance: The Political Process. Edited by Ernest Graves and Steven A. Hildreth. Lexington MA: Lexington Books, 1985.

25. "Impending Peace in Persian Gulf Prompts Israel to Prepare for War," Dayton Daily News, 111: 2A (12 August 1988).

26. International Institute for Strategic Studies. The Military Balance 1985-1986. Letchworth, England: The Garden City Press Ltd., 1985.

27. "Israel Aircraft Industries Bases Lavi Fighter Project on 300 Aircraft Procurement," Aviation Week & Space Technology, 118: 23 (18 July 1983).

28. 'Israel Backs Lavi Despite Opposition,' Aviation Week & Space Technology, 124: 33 (17 February 1986).

29. 'Israel Calls U.S. Defense Estimate of Lavi Cost Too High,' Aviation Week & Space Technology, 124: 19 (24 February 1986).

30. 'Israel Plans to Complete Third Lavi Prototype,' Aviation Week & Space Technology, 127: 27 (28 September 1987).

31. 'Israel Strong on Support for Lavi Program,' Aviation Week & Space Technology, 125: 28 (22 September 1986).

32. 'Israel to Buy Fewer, More Modern F-16s,' Aviation Week & Space Technology, 128: 18 (11 April 1988).

33. 'Israel Wins U.S. Financial Concessions to Cover Possible Cancellation of Lavi,' Aviation Week & Space Technology, 127: 25 (13 July 1987).

34. 'Israeli Fighter Development Put at $600 Million,' Aviation Week & Space Technology, 108: 21 (19 June 1978).

35. 'Israelis Pick F404 for New Fighter,' Aviation Week & Space Technology, 112: 12 (10 March 1980).

36. 'Israelis Stressed Power in Lavi Engine Choice,' Aviation Week & Space Technology, 114: 71 (22 June 1981).

37. Joint Chiefs of Staff. United States Military Posture for FY 1987. Prepared by The Organization of the Joint Chiefs of Staff, 1 January 1986.

38. Karp, Aaron. 'Ballistic Missile Development,' Journal of Defense and Diplomacy, 5: 15-17 (December 1987).

39. Kessel, Yoram. 'Israel's Cabinet, Split on Political Lines, Votes to Scrap Controversial Lavi Fighter,' The Wall Street Journal, CCIX: 13 (31 August 1987).

40. Kestin, Hesh. 'A $640 Hammer is a Bargain,' Forbes, 137: 46-50 (30 June 1986).

41. Klare, Michael T. American Arms Supermarket. Austin TX: University of Texas Press, 1984.

42. Klieman, Aaron. 'Israeli Military Exports,' Journal of Defense and Diplomacy, 5: 24-28 (December 1987).

43. Kramer, Franklin D. 'The Government's Approach to Security Assistance Decisions,' U.S. Security Assistance: The Political Process. Edited by Ernest Graves and Steven A. Hildreth. Lexington MA: Lexington Books, 1985.

44. 'Lavi Contracts With U.S. Companies Detailed,' Aviation Week & Space Technology, 122: 112 (21 January 1985).

45. 'Lavi or Not Lavi?' The Economist, 302: 29 (10 January 1987).

46. Lipman, Larry. 'Ties Binding Two Nations Bend But Don't Break,' Dayton Daily News, 111: 1A (10 May 1988).

47. Madden, Patrick J. and Capt Paul D. Woods. United States Security Assistance to Israel. MS thesis, LSSR 104-83. School of Systems and Logistics, Air Force Institute of Technology (AU), Wright-Patterson AFB OH, September 1983 (AD-A135594).

48. McCartney, James. 'U.S. Officials Fear Arab-Israeli War,' Dayton Daily News, 111: 14A (17 January 1988).

49. McCormick, James M. American Foreign Policy and American Values. Itasca IL: F. E. Peacock Publishers, Inc. 1985.

50. Mecham, Michael. 'U.S. Increases Pressure on Israel to Abandon Lavi,' Aviation Week & Space Technology, 127: 21 (17 August 1987).

51. Meisels, Andrew. 'Israel to Get F-16 Fighters, But Resists U.S. Peace Plan,' Washington DC Times, 47: B12 (5 April 1988).

52. Nyrop, Richard F. Israel, A Country Study (Second Edition). Edited by Richard F. Nyrop. Washington DC: Government Printing Office, 1979.

53. Oweiss, Ibrahim. 'The Israeli Economy and Its Military Liability,' American Arab Affairs, 8: 31-40 (Spring 1984).

54. Pierre, Andrew J. The Global Politics of Arms Sales. Princeton NJ: Princeton University Press, 1982.

55. 'Poll Finds 11% Lost Sympathy for Israel,' Dayton Daily News, 111: 2A (8 July 1988).

56. Pollock, David. The Politics of Pressure. Westport CN: Greenwood Press, 1982.

57. Precker, Michael. 'Israel's Economic Woes May Ground Jet Program,' Dallas Morning News, 107: A3 (9 December 1984).

58. Robinson, Clarence A. Jr. 'U.S. Companies Oppose Lavi Aid,' Aviation Week & Space Technology, 118: 16-19 (14 February 1983).

59. Rodan, Steve. "U.S. and Israel Are at Odds Over the Lavi Jet Fighter Project," New York Tribune, 104: F11 (9 January 1987).

60. Rosenberg, Robert. "National Pride Versus Economics," U.S. News & World Report, 103: 36 (31 August 1987).

61. Safire, William. "Intifada Shows a New Militancy," Dayton Daily News, 111: 9A (21 June 1988).

62. Safran, Nadav. Israel: The Embattled Ally. Cambridge MA: Belknap Press of Harvard University Press, 1978.

63. Seib, Gerald F. "Pentagon Has Doubts On New Israeli Jet," The Wall Street Journal, CCVIII: 34 (29 April 1986).

64. "Senate Committee Recommends $450 Million Loan for Lavi Fighter," Aviation Week & Space Technology, 123: 20 (18 November 1985).

65. "Shamir Asks Palestinians to Talk Peace," Dayton Daily News, 111: 7A (11 August 1988).

66. Sheffer, Gabriel. Dynamics of Dependence: U.S.-Israeli Relations. Boulder CO: Westview Press, Inc., 1987.

67. Silk, Leonard. "Military Braces for Deep Cuts," Dayton Daily News, 111: 1F (5 June 1988).

68. Spiegel, Steven L. "U.S. Relations with Israel: The Military Benefits," Orbis, 30: 475-497 (Fall 1986).

69. "State Department Delaying Transfer of Technology for Israeli Lavi," Aviation Week & Space Technology, 117: 20 (13 September 1982).

70. "State Department Notifies Congress of Composites Sale for Lavi," Aviation Week & Space Technology, 119: 27 (17 October 1983).

71. Steinberg, Gerald M. "Large-scale National Projects as Political Symbols: The Case of Israel," Comparative Politics, 19: 331-345 (April 1987).

72. Stewart, Jim. "Nation Owes Existence to Proud, Expensive Army," Dayton Daily News, 111: 12A (8 May 1988).

73. Tatro, Nicolas B. "Israel Trims Arms Industry," Dayton Daily News, 111: 10-E (13 December 1987).

74. Tivnan, Edward. The Lobby: Jewish Political Power and American Foreign Policy. New York: Simon and Schuster, 1987.

75. 'U.S. Approves Technology Transfer to Israel for Lavi,' Aviation Week & Space Technology, 121: 20 (5 November 1984).

76. U.S. Congress, House of Representatives, Committee on Foreign Affairs, Subcommittee on Europe and the Middle East. Hearings on Foreign Assistance Legislation for Fiscal Years 1988-89 (Part 3). Hearing, 100th Congress, 1st Session, 1987. Washington DC: Government Printing Office, 1987.

77. 'U.S. Defense Giants Eye Israel's New Jet,' Business Week, 2727: 51 (22 February 1982).

78. U.S. Department of State. Fundamentals of U.S. Foreign Policy. Washington DC: U.S. Government Printing Office, 1988.

79. United States of America. Congressional Presentation for Security Assistance Programs. Washington DC: U.S. Government Printing Office, 1987.

80. 'U.S. Nears Lavi Transfer Approval,' Aviation Week & Space Technology, 118: 20-23 (10 January 1983).

81. Widlanski, Michael. 'In Transition, Country Lives in Two Worlds,' Dayton Daily News, 111: 1A (8 May 1988).

82. Wolf, Charles Jr. Military Assistance Programs. Rand Corporation Report; No. P-3240. Santa Monica CA: October 1965.

Vita

Mr. Duane M. Petzoldt [redacted]

1971 [redacted] attended South Dakota State University, from which he received the degree of Bachelor of Science in Political Science in December 1975. In 1976, he enlisted in the U.S. Navy and served on active duty until August of 1979. Upon discharge from active duty, he attended graduate school at the University of South Dakota. In 1980, he went to work for the U.S. Air Force in August 1981, at McClellan AFB in Sacramento, California, as a Program Analyst PACE Trainee. He was working as a Production Management Specialist, at SM-ALC, until entering the Air Force Institute of Technology, in June 1987.

[redacted]

UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution unlimited.
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) AFIT/GLM/LSM/88S-55	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION School of Systems and Logistics 6b. OFFICE SYMBOL (If applicable) AFIT/LSM	7a. NAME OF MONITORING ORGANIZATION
6c. ADDRESS (City, State, and ZIP Code) Air Force Institute of Technology Wright-Patterson AFB OH 45433-6583	7b. ADDRESS (City, State, and ZIP Code)
8a. NAME OF FUNDING/SPONSORING ORGANIZATION 8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (City, State, and ZIP Code)	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO. / WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) See Box 19	
12. PERSONAL AUTHOR(S) Duane M. Petzoldt, B.S., GS-11, AFLC	
13a. TYPE OF REPORT MS Thesis 13b. TIME COVERED FROM _____ TO _____ 14. DATE OF REPORT (Year, Month, Day) 1988 September 15. PAGE COUNT 71	
16. SUPPLEMENTARY NOTATION	

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Lavi Jet Fighter Military Forces (Foreign) FMS Security Assistance
15	01		

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

Title: AN EXAMINATION OF THE UNITED STATES' ROLE IN THE DEVELOPMENT OF THE ISRAELI LAVI FIGHTER AIRCRAFT PROGRAM

Thesis Chairman: Craig M. Brandt, Ph.D
Professor of International Logistics

Approved for public release IAW AFR 190-1.

WILLIAM A. MAIER 17 Oct 88
Associate Dean
School of Systems and Logistics
Air Force Institute of Technology (AU)
Wright-Patterson AFB OH 45433

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS	21. ABSTRACT SECURITY CLASSIFICATION UNCLASSIFIED
22a NAME OF RESPONSIBLE INDIVIDUAL Craig M. Brandt, Ph.D.	22b. TELEPHONE (Include Area Code) (513) 255-4149 22c. OFFICE SYMBOL AFIT/LSM

DD Form 1473, JUN 86 *Previous editions are obsolete.* SECURITY CLASSIFICATION OF THIS PAGE
UNCLASSIFIED

Security assistance is an outward sign of the long-standing special relationship between the U.S. and Israel. The U.S. has used security assistance as an aid to its foreign policy objectives of providing for Israel's security, promoting stability in the Middle East, and containing Soviet expansion into the area. For the purpose of this research, security assistance was examined through an analysis of the U.S. role in the development of the Israeli Lavi fighter aircraft program.

The methodology included an overview of Israel's historical dependence on U.S. aid. This research addressed the following objective questions: (1) why did Israel want to build the Lavi when there were several advanced fighters already available; (2) why did the United States fund the Lavi; and (3) what did the Lavi project accomplish in terms of U.S. foreign policy?

The examination of the Lavi analyzed how Israel developed the initial proposal for the aircraft, how they acquired the funds and technology from the U.S., how the program costs escalated, why the project was cancelled, and how Israel will meet future threats to its security. Also examined were the effects the Lavi had on promoting U.S. foreign policy goals in the Middle East and if those goals were met.